

## NEW RECORDS OF CETACEA, WITH A LIST OF QUEENSLAND SPECIES.

BY HEBER A. LONGMAN, Director. .

(Plate XLIII.)

### PYGMY SPERM WHALE: *Kogia breviceps* (de Blainville).

IN December, 1925, Mr. W. K. Cleeve, Secretary of the Rockhampton School of Arts, forwarded small photographs of a skull, which had been presented to the Museum in his charge. Recognising this as the rare *Kogia*, or pygmy sperm whale, I wrote asking if the skull itself could be sent in order that the specimen might be placed on record. Subsequently it was forwarded to Brisbane, on loan, for exact identification and description.

The skull was found under sandstone cliffs about five miles north of Corio Head, or approximately twenty miles north of Yeppoon, by Mr. George Corbett, who presented it to the Rockhampton School of Arts Museum. Unfortunately the material consists solely of the skull, which has evidently been exposed to the weather for a lengthy period and is much damaged and abraded. The anterior portion of the rostrum is incomplete. The lamelliform extensions of the maxillæ overlying the orbital region are broken away on each side, exposing the surface of the frontals. The vertex is incomplete, owing to abrasion, and the anterior portion of the mid-facial crest is now missing. The vomer is also damaged anteriorly. The orbital and palatal surfaces are much abraded, and no periotic bones are present. Notwithstanding the unsatisfactory condition of the skull, it has been thought advisable to put a few notes on record, but the specimen does not lend itself to significant illustration or detailed description. It is the first record of this rare Cetacean from the Queensland Coast.

No less than six species of the pygmy sperm whales have been described, three coming from Australasian waters. Under the name of *Euphysetes grayii* Wall, in 1851,<sup>1</sup> published a description of a skeleton found on Marouba Beach, Sydney, although the work is said to have been done by Macleay. In 1865 Krefft described *E. macleayii*, which was based on a specimen from Manly Beach,<sup>2</sup> and in 1873 Haast described *E. pottsi* from Governor's Bay, New Zealand.<sup>3</sup> Although considerable variation is presented by the crania and

<sup>1</sup> W. S. Wall, Memoir No. 1, Australian Museum, Sydney, 1851.

<sup>2</sup> G. Krefft, Proc. Zool. Soc., 1865, p. 708.

<sup>3</sup> J. Haast, Proc. Zool. Soc., 1874, p. 260, and Trans. Pr. N.Z. Inst., vi., 1874, p. 97, pl. xv.

skeletal remains on which these species are based, the majority of systematists consider that there is but one wide-ranging species, *Kogia breviceps*, first described by de Blainville in 1838 as *Physeter breviceps*, the type locality being the Cape of Good Hope.<sup>4</sup>

Oliver notes that twelve examples have been found on New Zealand coasts,<sup>5</sup> and Lord and Scott note a mandible in the Tasmanian Museum.<sup>6</sup>

This incomplete Queensland skull has a maximum length of 395 mm.; the maximum breadth is 410 mm. (between the postorbital processes); and the height is 260 mm. (pterygoid margins to vertex). In the supraoccipital region there is a pronounced median concavity. From the posterior aspect it agrees fairly well with the cranium of *Kogia breviceps* as figured by van Beneden and Gervais (Plate XX., fig. 1b),<sup>7</sup> but the region of the vertex is more elevated. In this respect our cranium agrees with the specimens previously described from Australia and differs from the more flattened skull from Japan called *Physeter simus* by Owen,<sup>8</sup> which Beddard regards as a good species.<sup>9</sup> The zygomatic processes are plainly visible beyond the exoccipitals on each side, from this aspect.

The mid-facial crest is formed, as usual, by the thickened posterior portion of the left maxilla, conjoined with the posterior extension of the right premaxilla. The last bone extends for almost the total length of the skull and apparently reaches in this Cetacean the relative maximum antero-posterior extent for the mammalia, illustrating to a remarkable degree the plasticity of the rostral elements.

It is true that in the Sirenia the massive premaxillæ of the dugong (containing extraordinary elongated incisors that are almost wholly hidden in most specimens) present an analogous development, but even here the anterior elements, although the dominant bones, do not extend so far back towards the occiput. In the perfect specimen of *K. breviceps* described by Benham, "triangular calcifications" carrying a tooth were noted at the tip of each premaxilla.<sup>10</sup>

There is no evidence of the frontals on the surface in the region of the vertex, and there are no distinguishable nasals. The left blow-hole, or external narial orifice, is oval, with the antero-posterior diameter 60 mm., and the transverse 40. The right orifice is almost circular and is relatively insignificant, being only 15 mm. in diameter.

<sup>4</sup> de Blainville, Ann. Anat. Phys., ii., 1838, p. 337.

<sup>5</sup> W. R. B. Oliver, New Zeal. Jr. Sci. Tech., v., 1922.

<sup>6</sup> Lord and Scott, Syn. Vert. Animals, Tasmania, 1924, p. 280.

<sup>7</sup> van Beneden and P. Gervais, Ostéog. des Cétacés, 1868-1879.

<sup>8</sup> Owen, Trans. Zool. Soc., vi., 1869, p. 30.

<sup>9</sup> Beddard, A Book of Whales, 1900, p. 189.

<sup>10</sup> W. B. Benham, Proc. Zool. Soc., 1902, p. 55.

The basal view of the skull is too much abraded to yield much information for comparative value with other specimens. Although incomplete, the lower borders of the pterygoids are obviously inflected posterior to the tubal notches, as in the specimen described by Schulte (p. 374), in his valuable study of foetal and adult skulls.<sup>11</sup>

Beddard notes (*loc. cit.*, p. 186) that "Kogia or Cogia, as it is variously spelt, is a 'barbarous' word said to be a Latinised form of 'codger.' But it might be a tribute to a Turk of the past named Cogia Effendi, who observed whales in the Mediterranean."

**BEAKED WHALE: *Mesoplodon densirostris* (de Blainville).**

A skull of this rare Cetacean was found at Yeppoon, near Rockhampton, and presented to the Queensland Museum by Dr. E. H. Beaman in March, 1924 (J. 4056). No mandibular remains were secured, and unfortunately the skull is somewhat damaged and abraded. This is the first record of this species for Queensland. The maximum length of our specimen is 720 mm. At a distance of 250 mm. from the tip of the rostrum, which is not quite complete, the height of the combined elements, which are well ankylosed, is 76 mm., whereas the width in this region is but 51 mm. Near to the anterior projection of the palatine bones, 50 mm. behind the previous region, the rostral is still more compressed laterally, but towards the apex the diameters are about equal. This gives concisely the chief characteristics of the massive rostrum. At the posterior end the mesorostral ossification rises above the premaxillaries in the median line. In front of the maxillary foramina the two deep characteristic grooves are present. Unfortunately the orbital region on each side is much damaged, and the ventral surface is considerably abraded. In general contours our specimen agrees well with the very fine illustrations of this species recently published by Sir Sidney Harmer, with detailed descriptions and references to literature.<sup>12</sup>

Amongst other characters, *M. densirostris* is distinguished from a New Zealand species *M. bowdoini* Andrews,<sup>13</sup> which also has a very thick rostrum, by the absence of deep inner notches and the more posterior position of the antorbital notches at the base of the rostrum, the composition of the elements of the vertex, the narrower ventral surfaces of the pterygoids, and the curved lateral expansion of the rostrum in its central region, as seen from either dorsal or ventral views.

Krefft has recorded *M. densirostris* ("Dioplodon sechellensis") from Lord Howe Island,<sup>14</sup> and this appears to be the only specimen previously noted from Australasian waters. According to Sir Sidney Harmer (*loc. cit.*, p. 576) only

<sup>11</sup> H. V. W. Schulte, Bull. Amer. Mus. Nat. Hist., xxvii., 1917.

<sup>12</sup> S. F. Harmer, Proc. Zool. Soc., 1924, pp. 541-587, pl. i-iv.

<sup>13</sup> Roy C. Andrews, Bull. Amer. Mus. Nat. Hist., xxiv., 1908, pp. 203-215, pl. xiii.

<sup>14</sup> G. Krefft, Proc. Zool. Soc., 1870, p. 426.

seven examples were known in 1924 of this rare species. An illustration of the body contours, as drawn from nature, was published by R. C. Andrews in 1914.

A NEW BEAKED WHALE: *Mesoplodon pacificus* new species.

(Plate XLIII.)

An unusually large skull and mandible of a Beaked Whale found at Mackay in 1882 were presented to the Queensland Museum by Mr. E. W. Rawson. This material (J. 2106) represents a new species of *Mesoplodon* with a single pair of apical mandibular teeth, but which can be readily distinguished from both *M. hectori* and *mirus*. In several respects it resembles *M. mirus*, established by True in 1913,<sup>15,16</sup> more fully described and illustrated by Harmer in 1924,<sup>17</sup> and which is only known from three specimens obtained from the Atlantic.

The skull is nearly four feet in length, and judging from its size and the condition of the sutures it represents a fully mature whale. The specimen is in fairly good condition, but is somewhat abraded in places owing to exposure.

The chief characters of the new species are as follows:—A single pair of apical mandibular teeth; symphysis more than one-fourth of the mandibular length. No basirostral groove; rostrum very elongated, shallow, margined with a prominent flange. Maxillary ridges prominent and not diverging outwards. Maxillary foramina much enlarged. No inner notches present in antorbital region. Lachrymal very strongly developed and forming the chief lateral constituent of the antorbital tubercle. Region of vertex contracted towards the occipital elements, which are almost vertical; transverse diameter behind premaxillæ much exceeding antero-posterior length of vertex; nasals confined to anterior moiety of vertex.

Mandible.—With the exception of the postero-inferior margins the mandible is perfect (Plate XLIII., fig. 3). No teeth are preserved, but there are two large alveoli at the apex of the jaw. These alveoli are 28 mm. in antero-posterior extent, with a width of 17 mm., and they are directed forward. The extreme tip of the mandible, just beyond the alveoli, is squarely truncated, but is very slightly abraded. A dentary groove, which is very straight, is present on each side of the anterior two-thirds of each ramus. The mandible is 1066 in length from the tip to the parallel of both condyles, or 1085 from the tip to the end of either condyle, and the symphyseal region extends for 300, or considerably more than one quarter noted for the type of *M. mirus*. In lateral contours and in the straight external border of the anterior portion the mandible agrees fairly well with the descriptions and

<sup>15</sup> F. W. True, Smith. Misc. Coll., vol. 60, No. 25, 1913.

<sup>16</sup> F. W. True, Proc. U.S. Nat. Mus., vol. 45, 1913, pp. 651-657, pl. 52-57.

<sup>17</sup> S. F. Harmer, Proc. Zool. Soc., 1924, pp. 541-587.

figures of *M. mirus* published by True and Harmer, but the area between the condyle and the coronoid process is emarginated and the upper surface of the symphyseal region is concave.

The skull is 1186 mm. in maximum length, with a maximum breadth across the zygomatic processes of 520 mm., and the height from the inferior borders of the pterygoids to the vertex is 455 mm. In comparison with the skull of *M. hectori* as figured by Flower,<sup>18</sup> this species is much longer and shallower in the rostral region, and the post-rostral portion is relatively much broader. In the diagnostic characters of the antorbital region as set out by Harmer (1924), *M. pacificus* differs essentially from both *mirus* and *hectori*. The anterior plate of the malar is greatly expanded and covers the entire ventral surface of the prominent antorbital notch, but, unlike *M. mirus*, it does not form part of the notch itself and is well hidden from the dorsal surface although just visible from the lateral view. The styliform zygomatic processes are broken on each side. The large and greatly thickened lachrymal is a very distinctive feature. It forms a prominent part of the tubercle when seen from either the dorsal or anterior view, and also is the main constituent in the lateral view. Its rounded lateral border slopes to the ventral surface, where the flattened portion passes inwards beneath the zygomatic process of the malar.

Compared with the lateral view of skulls of *mirus*, as illustrated by True and Harmer, the lachrymal of *pacificus* is strikingly distinct, its vertical thickness being no less than 46 mm., whilst its maximum antero-posterior extent is 55 mm. This is well shown in Plate XLIII., fig. 2. The antero-ventral border of the bone is rounded, whilst the posterior portion is obliquely triangular with the apex directed upwards and backwards. On each side of the skull this element is far thicker than the overlying frontal and maxillary plates (apart from the maxillary ridge), and in this lateral development the lachrymal appears to reach in *M. pacificus* its maximum in the Ziphiidæ.

When referring to the flattened lachrymal of a young *M. grayi*, W. K. Gregory, in his study of the evolution of this element, states, "In existing odontocetes the most complete and primitive condition of the lachrymal is seen in the Ziphiinæ."<sup>19</sup> *M. pacificus* would appear to be a specialised species in this respect, and in view of the different interpretations of the elements of the antorbital region of other Cetaceans, as noted by Owen, Flower, Harmer, and others, this development is of interest. The lachrymal in R. Kellogg's fossil dolphin, *Xenorophus*, is relatively enormous.

In *M. pacificus* the vertex has reached a more posterior position than in either *mirus* or *hectori*, and this is an outstanding difference which is obvious when the superior cranial surfaces of the three species are viewed together. When seen in lateral outline the occipital region of *M. pacificus* is much more vertical, and the distance from the border of the foramen magnum to the

<sup>18</sup> W. H. Flower, Trans. Zool. Soc., x., 1878, pl. lxxi.

<sup>19</sup> W. K. Gregory, Bull. Amer. Mus. Nat. Hist., xlii., 1920, p. 161.



*Mesoplodon pacificus* Longman.

W. Sanderson, Photo.

external narial orifices is relatively much contracted. The width of the expanded anterior portion of the vertex across the premaxillæ is about equal to half the width of the cranium in this region, as in *M. mirus*. The median portion of the nasals reaches the plane of the premaxillary plates. Owing to abrasion on the dorsum of the vertex, the sutures between the component parts cannot be fully traced, but the post-nasal elements are quite as extensive as the conjoined nasals. The right nasal is larger than the left. The width of the vertex behind the expanded premaxillary plates far exceeds its antero-posterior diameter, as may be seen from Plate XLIII., fig. 1, and this forms a striking distinction between *M. pacificus* and *M. mirus* and even more so with *M. hectori*. Behind the premaxillary crests the recurved plates of the maxillaries are vertical in position, but are thinner and less extensive outwardly than in *M. mirus*, as figured by Harmer.

The mesethmoid has a very prominent convex projection, attaining 50 mm. in height, at its junction with the mesorostral ossification immediately in front of the nares, and behind this is a deep vertical sinus, which is not found in *hectori*. In front of the nares the right premaxillary plate (72 mm.) is wider than the left (60), whilst at the expanded portions on the sub-vertical anterior face of the vertex the right plate attains 120 and the left 72.

The straight and prominent maxillary ridge is best developed on the right side, but this region is partly abraded on the left. This ridge is almost parallel with the median line of the skull, resembling that of *M. europæus*, and is not directed obliquely outwards as in *M. mirus*. From the lateral view its dorsal border is evenly convex, and in transverse section it is acuminate.

There is no noticeable inner notch but an even curve at the base of the rostrum in front of the prominent antorbital notch. The mesorostral ossification is confined to the basal portion of the rostrum and extends only 110 mm. beyond the line of the antorbital notches. The maxillary foramina are much enlarged (40 x 16 mm.), resembling those of *Berardius arnuxii*, whilst the premaxillary foramina, which are more anteriorly situated, are unequal in position, the left being considerably in advance of the other. The last-named foramina open into a groove in each premaxilla, which is deep but not extensive. In the median part of each lateral expansion of the vertex there is a prominent double foramen between the premaxillary and maxillary plates. These foramina open into the nares on either side of the mesethmoid.

The rostrum itself is relatively wider and less deep than that of either *M. mirus* or *hectori*, and in this respect resembles that of *M. bidens* as figured by True<sup>19a</sup> and by van Beneden and Gervais in "*sowerbiensis*." The maxillary flange on each side is a very prominent character. This commences in front of the maxillary ridge, and here for a short distance the outer edge is raised considerably above the level of the median portion of the rostrum. As it proceeds forward it slopes downwards until it ends on the ventral surface at

<sup>19a</sup> F. W. True, Bull. 73, U.S. Nat. Mus., 1910, pl. 7.

the anterior point of the maxilla in the terminal fourth of the rostrum. The infero-lateral region of each flange is marked by a narrow dentary groove, which is also continued to the tip of the rostrum.

With the exception of the curved basal portion of the lateral flange, the rostrum is very straight on its superior border, when seen in lateral outline (Plate XLIII.). There is here a superficial resemblance to *M. grayi*, as figured by Flower and Hector, but it has no close affinity with this species.

On the ventral surface the vomer appears at 248 mm. from the apex of the rostrum. It is bordered by a longitudinal groove on each side and is also preceded by a median groove between the premaxillæ. The rostrum is very shallow in the region of the vomer. After being visible for 330 mm. the median element disappears beneath the thickening plates of the maxillæ. The pterygoid region is somewhat damaged and abraded. The sutures with the palatines cannot be traced positively between the anterior pterygoid wings.

The basioccipital region resembles in its main features *M. mirus* as described by True and Harmer. The anterior halves of the ridges are strongly convergent and are continuous with the posterior lateral portions of the pterygoid. No periotic bones are preserved.

The anterior ends of the zygomatic processes of the squamosal are not so truncated as in *M. mirus*.

When compared with the illustrations of skulls of *Berardius* published by True (*loc. cit.*, 1910), C. A. Marelli<sup>20</sup> and earlier writers, it is obvious from the architecture of the vertex and other features that our specimen is a *Mesoplodon* and not an anomalous *Berardius* in which the second pair of teeth is missing.

*Table of Measurements in Millimetres.*

Skull, total length	.. .. .	1,186
Height, inferior borders of pterygoids to vertex	.. .. .	455
Width across zygomatic processes	.. .. .	520
Width across occipital condyles	.. .. .	160
Length of rostrum from level of bases of antorbital notches		815
Width of rostrum between bases of antorbital notches	.. .. .	335
Height of rostrum at middle	.. .. .	60
Width of rostrum at middle	.. .. .	160
Width of premaxillæ across expanded ends at vertex	.. .. .	241
Superior nares, greatest width	.. .. .	89
Mandible, length of ramus to end of condyle	.. .. .	1,085
Mandible, length of symphysis	.. .. .	300
Mandible, maximum height at coronoid	.. .. .	187

<sup>20</sup> C. A. Marelli, *Annales del Mus. Hist. Nat. Buenos Aires*, xxx., 1920, pp. 411-444, pl. i.-v.



The single apical pair of teeth is so distinctive a feature that Oliver has erected the genus *Paikea*<sup>21</sup> to accommodate *hectori* and *mirus*. Harmer, however, has pointed out the difficulties associated with this course, as *hectori* and *mirus* differ from each other in certain respects and the last-named is obviously allied to *M. europæus*, in which the teeth are near the posterior end of the symphysis.

Probably each new specimen to be received will add to our knowledge of the variation of these remarkable Cetaceans, which appear to be still undergoing a process of rapid evolution. The differences between *M. pacificus* and its allies, however, are too significant to be merely individual or due to age.

In his interesting review of the inter-relationships of the Cetacea, the late Herluf Winge (as translated by G. S. Miller) considers the short, broad cranium as the result of water pressure moulding the plastic elements, and the extreme development in the Xiphiines as due "to swifter, more violent swimming than other whales." Winge's views, which are here very condensed, are suggestive, and the extraordinary diversity of cranial architecture in this group is surely the result of such evolutionary processes. G. S. Miller (1923) has pointed out the probable significance of water pressure on the skulls of rapid-swimming mammals that are "born in the water."<sup>21a</sup>

*Mesoplodon pacificus* is extremely brachycerebric. An attempt to estimate the size of the cranial cavity, with inside calipers, shows an approximate length from the upper margin of the foramen magnum to the region of the degenerate cribriform plate (which is not perforated) of 155 mm., whilst the maximum breadth is about 260. There is a prominent vertical tentorial plate. The capacity of the brain case, as measured with fine sand, is 5,400 cubic centimetres. The minimum transverse diameter of the supra-occipital region to the margins of the temporal fossæ is 325.

Judging from the recorded proportions of other species, the skull of *M. pacificus* represents a beaked whale of at least 25 feet in length. It appears to be the largest skull yet recorded for the genus.

#### LIST OF QUEENSLAND CETACEA.

The following species are represented in the Museum:—

##### MYSTACOCETI.

**HUMP-BACK WHALE:** *Megaptera nodosa* Bonnaterre (including *M. longimana* and *boops*).

The Queensland Museum is indebted to Mr. Thomas Welsby for the skeleton of a specimen about 35 feet in length, which was stranded on Stradbroke Island, to the east of Amity Point, in August, 1919. (J. 3343.)

**SULPHUR-BOTTOM WHALE:** *Balænoptera musculus* (Linnæus) (including *B. australis*).  
Remains of skeleton without data.

<sup>21</sup> W. R. B. Oliver, Proc. Zool. Soc., 1922, p. 574.

<sup>21a</sup> G. S. Miller, Smith. Misc. Coll. vol. 76, No. 5, 1923.

## ODONTOCETI.

**SPERM WHALE** : *Physeter macrocephalus* Linnaeus.

Apart from many teeth, the only specimen representing the Sperm Whale is an incomplete maxilla, collected at Bushy Islet, Hannibal Islands, N.Q., and presented by Captain T. M. Almond. (D. 8522.)

**PYGMY SPERM WHALE** : *Kogia breviceps* (de Blainville).

Recorded in this paper.

## FAMILY ZIPHIIDÆ.

**CUVIER'S BEAKED WHALE** : *Ziphius cavirostris* Cuvier.

An incomplete skeleton of this whale was stranded at Nikenbah, near Maryborough, in 1918, and presented by Mr. Emil Jensen. It was placed on record by the writer in 1919.<sup>22</sup>

**BEAKED WHALE** : *Mesoplodon densirostris* (de Blainville).

Recorded in this paper.

**LAYARD'S BEAKED WHALE** : *Mesoplodon layardi* (Gray).

A skull and a few vertebræ were obtained from a specimen stranded at Zilzie, near Emu Park, Rockhampton, in 1884. (J. 2105.) A note regarding its identification by C. W. De Vis as *Mesoplodon layardi* was published by W. N. Jaggard in 1885.<sup>23</sup>

A specimen stranded near Southport, also in 1884, was tentatively recorded by De Vis as *Ziphius layardi*,<sup>24</sup> but no report on the skull and other bones appears to have been published. This whale was 12 ft. 4 in. in length, and was mounted with the skull in the Museum, where it is still on exhibition. In the circumstances, no satisfactory examination can be made of the hidden skull. No raised teeth can be traced in the mandible.

**BEAKED WHALE** : *Mesoplodon pacificus* Longman.

Recorded in this paper.

## FAMILY DELPHINIDÆ.

**PILOT-WHALE** or "**BLACKFISH**" : *Globicephala melæna* (Traill).

This species is represented by two crania, one of which (J. 3820) comes from Fraser Island (presented by Mr. N. D. Allom). Judging from crania alone, the "blackfish" stranded in Madura Strait, Java, recorded by K. W. Dammerman as Blyth's *G. indica*,<sup>25</sup> are closely allied to our species. I have

<sup>22</sup> H. A. Longman, Proc. Roy. Soc. Qld., xxxi., 1919, pp. 90-93. pl. iii. and iv.

<sup>23</sup> W. N. Jaggard, Proc. Roy. Soc. Qld., i., 1885, p. 58.

<sup>24</sup> C. W. De Vis, Proc. Roy. Soc. Qld., i., p. 174, pl. xix.

<sup>25</sup> K. W. Dammerman, Treubia, vol. v., 1924, pl. vi.-viii.

preferred to use the specific name of the older species, which most authorities recognise as cosmopolitan, as I have no record of the colours of our specimen in life.

**FALSE KILLER WHALE:** *Pseudorca crassidens* Owen.

The late Mr. J. H. Stevens, Inspector of Fisheries, presented a skull with lower jaw of this Cetacean to the Museum in 1913. (J. 937.) The locality is stated to have been near Townsville, Queensland.

**COMMON DOLPHIN:** *Delphinus delphis* Linnæus.

This is represented by a skull with remains of the skeleton from Moreton Bay. (J. 2776.)

**BOTTLE-NOSED DOLPHIN:** *Tursiops catalania* (Gray).

This species is represented by several skulls, skeletal material and two mounted specimens. The localities range from Townsville in the north to Burleigh Heads. This appears to be the most common dolphin on our coast.

**OWEN'S DOLPHIN:** *Sotalia gadamu* (Owen).

Two of our skulls have been identified as this species, which has been recorded for Australia by Flower<sup>26</sup> and Ogilby.<sup>27</sup> At present the writer is not satisfied with the separation of this material from *T. catalania*. There is considerable variation in the region of the pterygoids and according to True the number of teeth in *T. catalania* varies from 21 to 28. True also notes that the skull of *Sotalia gadamu* "shows decided affinities to *Tursiops*, from some species of which, were the pterygoids united, it would be very difficult to distinguish it."<sup>28</sup> In our specimens the antorbital region slopes obliquely away from the notch, and this appears to be a distinguishing feature from the type of *Delphinus gadamu* as figured by Owen.<sup>29</sup>

A skeleton of the Speckled Dolphin, *Sotalia lentiginosa*, is also present in the collections, and is probably from our waters but there is no locality data. This species, as figured by Lydekker,<sup>30</sup> is distinctively spotted when adult.

Coloured casts of models of species of *Balaena*, *Balaenoptera*, *Megaptera*, and *Rhachianectes*, received in exchange from the American Museum of Natural History, New York, are on exhibition in the Public Galleries.

**ABORIGINALS AND "PORPOISES."**

In view of the references in literature to the supposed co-operative association in fishing in early days of Queensland Aborigines with "porpoises," I have thought it of interest to review the observations on this curious subject.

<sup>26</sup> W. H. Flower, Proc. Zool. Soc., 1883, p. 489.

<sup>27</sup> J. D. Ogilby, Catal. Austr. Mamm., Aust. Mus., 1892, p. 77.

<sup>28</sup> F. W. True, Bull. 36 U.S. Nat. Mus., 1889, p. 14.

<sup>29</sup> R. Owen, Trans. Zool. Soc., vi., 1869, pl. iv.

<sup>30</sup> R. Lydekker, Proc. Zool. Soc., 1908, pp. 802-808, pl. xlv.

The dolphins found on our coast are invariably called "porpoises," and presumably the species mentioned in the following references is *Tursiops catalania*. At the present time owing to the prevalence of motor boats these Cetaceans are less common in Moreton Bay than in the past.

As considerable scepticism naturally exists as to the reality of this co-operative association, several extracts will be given. In the Proceedings of the Zoological Society for 1856, p. 353-4, there appeared a short article by Mr. Fairholme entitled "The Blacks of Moreton Bay and the Porpoises," which is as follows:—

"Between the two islands which form the south part of Moreton Bay, is a passage known as South Passage, formerly used for ships entering the Bay, but now given up. Near the deserted Pilot Station at Amity Point, some of the natives may constantly be found during the warmer months of the year fishing for 'mullet,' a very fine fish about the size of a mackerel. In this pursuit they are assisted in a most wonderful manner by the Porpoises. It seems that from time immemorial a sort of understanding has existed between the blacks and the porpoises for their mutual advantage, and the former pretend to know all the porpoises about the spot, and even have names for them.

"The beach here consists of shelving sand, and near the shore are small hillocks of sand, on which the blacks sit, watching for the appearance of a shoal of mullet. Their nets, which are used by hand, and are stretched on a frame about 4 feet wide, lie ready on the beach. On seeing a shoal, several of the men run down, and with their spears make a peculiar splashing in the water. Whether the porpoises really understand this as a signal, or think it is the fish, it is difficult to determine, but the result is always the same: they at once come in towards the shore, driving the mullet before them. As they near the edge, a number of the blacks with spears and hand-nets quickly divide to the right and left, and dash into the water. The porpoises being outside the shoal, numbers of fish are secured before they can break away. In the scene of apparent confusion that takes place, the blacks and porpoises are seen splashing about close to each other. So fearless are the latter, that strangers, who have expressed doubts as to their tameness, have often been shown that they will take a fish from the end of a spear, when held to them.

"For my own part I cannot doubt that the understanding is real, and that the natives know these porpoises, and that strange porpoises would not show so little fear of the natives. The oldest men of the tribe say that the same kind of fishing has always been carried on as long as they can remember.

"Porpoises abound in the Bay, but in no other part do the natives fish with their assistance."

A somewhat similar account is given by George Watkins in the Proceedings of the Royal Society of Queensland, vol. viii., 1891, p. 45, who says: "The co-operative principle was so well understood between these fellow-adventurers, that an unsuccessful porpoise would swim backwards and forwards on the beach, until a friend from the shore waded out with a fish for him on the end of a spear."

Apparently the earliest record is that of James Backhouse, who states: "The blacks do not kill the porpoises because they show where there are fish to be caught." Mr. Thomas Welsby, to whom I am indebted for this reference, says that this was written on the 11th April, 1836, when Backhouse and his friends were at Amity Point. (J. Backhouse, "A Narrative of a Visit to the Australian Colonies," London, 1843, p. 368.)

Mr. Welsby also refers me to the account given by John Campbell, written first for the "Ipswich Observer," but printed as a pamphlet in 1875 under the title "The Early Settlement of Queensland and other Articles." The writer states that he was at first incredulous, but records his observations as an eye-witness at Amity Point, which are substantially the same as those given by Fairholme.

During the anchorage of the "Rattlesnake" off Moreton Island in 1847, John Macgillivray had an opportunity of making notes on the "Porpoise" of Moreton Bay. He refers to this as "an undescribed porpoise, a specimen of which, however, I did not procure, as the natives believed the most direful consequences would ensue from the destruction of one; and I considered the advantages resulting to science from the addition of a new species of *Phocoena*, would not have justified me in outraging their strongly expressed superstitious feelings on the subject. We observed that whenever a drove of these porpoises came close inshore, a party of natives followed them along the beach, and when a shoal of fish, endeavouring to avoid their natural enemies, approached within reach, the blacks rushed out into the water with loud cries, and, keeping their bag nets close together so as to form a semicircle, scooped out as many fish as came within reach." (Narrative Voyage Rattlesnake, i., 1892, p. 48.)

In "Tom Petrie's Reminiscences," dating from 1837 (published in Brisbane, 1904) his daughter records (p. 70) that one old porpoise was well known and spoken of fondly and the blacks regarded him as "the big fellow of the tribe of porpoises. I [Tom Petrie] have seen this creature take fish from a spear, and the white men working on the island told me that they often saw him knocking about with the blacks."

Another reference to this particular "porpoise" is to be found in "The Genesis of Queensland," by H. S. Russell, 1888, p. 290, where it is stated to be "as tame—with those blacks—as a pussy cat." Russell states that this scene was so curious "that the evidence of my own senses alone permits me to mention it." I am indebted to Dr. E. Sandford Jackson for the last two references.

Mr. Thomas Welsby in his book "Schnappering," published in Brisbane in 1905, says (p. 81) :—

"I remember witnessing a great scene of fun and excitement on the haul right in front of the reserve at Amity Point. A large school of mullet were coming in along the shore, but were too far out in the deep water for the blacks, when a number of porpoises were observed rolling about fully 500 yards away, and sunning themselves, in complete unconsciousness of the feast so near them. One blackfellow went down to the beach with a spear, which he prodded into the sand several times, and then struck the water with it at full length and flat along it or horizontally. Instantly the porpoises answered the signal by dashing in and, of course, driving the poor mullet before them, when there was a rush of about twenty natives into them with their nets, and for the next few minutes nothing was to be seen but a confused mass of fish, porpoises and blacks, all mixed up together, out of which the blacks emerged with their nets as full as they could hold, and left the balance of the school to be worried by their curious allies."

The average reader may be sceptical and suggest that the association may be explained concisely by the old adage: *post hoc, ergo propter hoc*. Mr. Welsby, however, who is one of the keenest of fishermen, says, "It is very easy to understand how the two came to work together in the strange way they did, for the porpoise is a very intelligent creature, and he soon found out that attendance on the blackfellow meant fish for him."

In view of the many observations made by different persons it appears that there is a good case for this remarkable illustration of commensalism.

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[END OF Vol. VIII., MEMOIRS OF THE QUEENSLAND MUSEUM.]

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